Consolidate, Virtualize, Automate → Cloud Services

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Agenda

- Cisco IT
- Vision/Strategy/Execution

- Consolidation/Virtualization
- Financial Benefits

- 3-5 year plan
- Cloud Computing

Our Destination, Our Destiny

VISION

Lead Every Move Cisco Makes with IT

STRATEGY

Unifying the Business and Technology Architectures

EXECUTION

Measure Success: Productivity, Experience, Growth, Time to Capability

Our Destination, Our Destiny

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Growth, Time to Capability

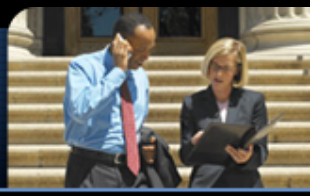
IT Strategic Imperatives

- Business model enablement
- Communication and collaboration
- Virtualization
- Decision making advantage
- Globalization
- Leadership

Data Center / Business Agility Challenges

"IT runs the business – downtime is not an option"
"I want to see more business value out of IT"

CxO



"Our applications are the 'face' of our business"
"It's all about keeping the application available"

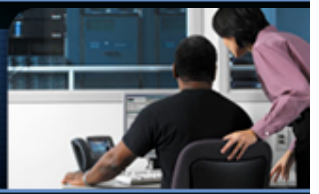
Apps

"As long as my servers are up I'm OK"
"We have too many underutilized servers"

Server

"Our information is our business. We need to protect our data everywhere – in transit and at rest"

SecOps



"I can't keep up with the amount of storage that needs to be backed up, replicated and archived "

Storage

"I need to provide lots of bandwidth between data centers, and make sure users can get to the apps"

Network

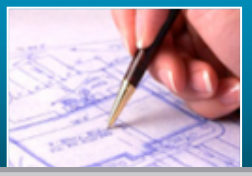
Business Pressures

Continuity/Reg. (SOX, etc.)

Productivity

SLA Metrics

Global Availability



New Bus Models

Power and Cooling

Asset Utilization

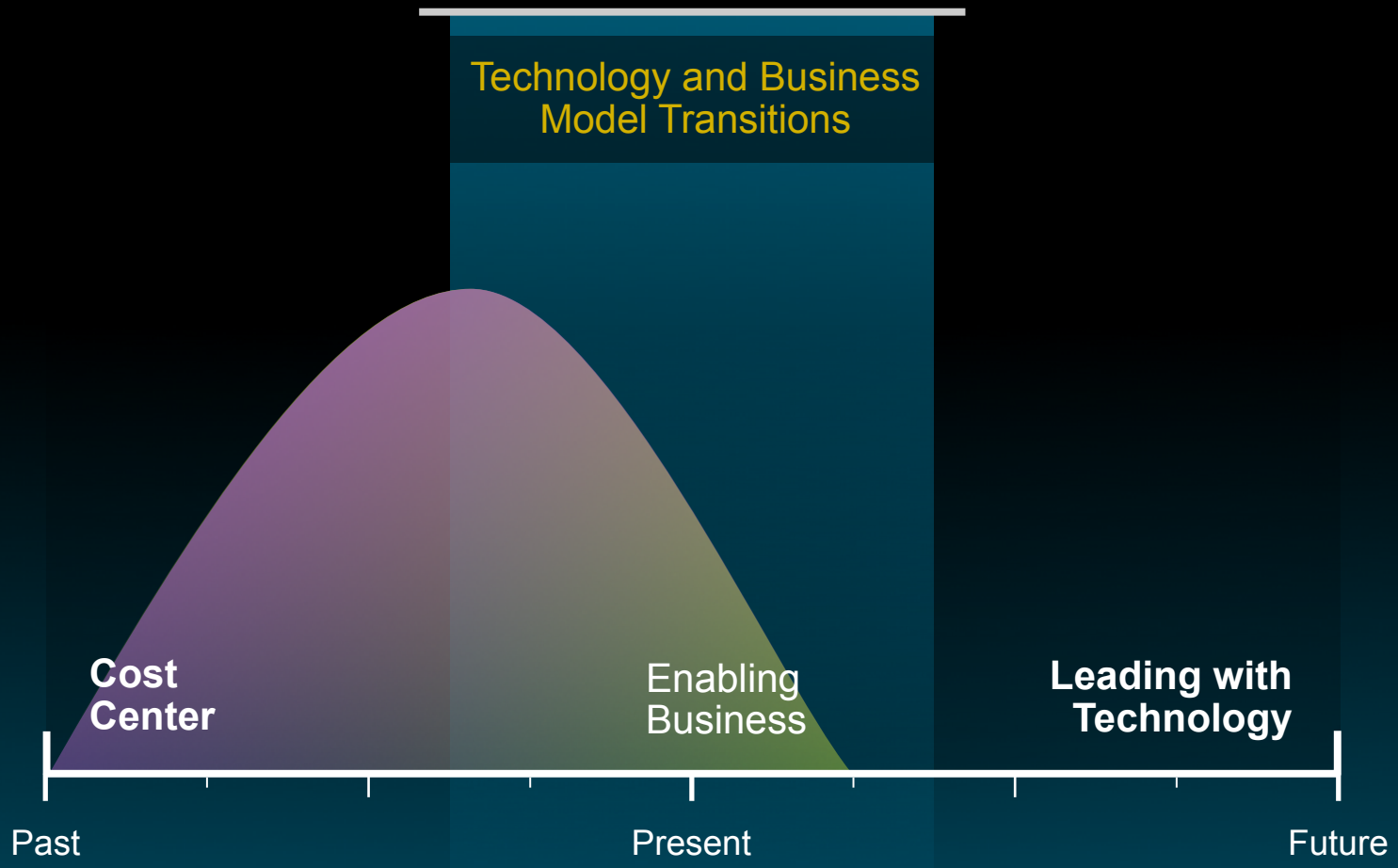
Provisioning

Threat Prevention

Green Pressures

Operational Limitations

Impact of Technology on IT Value



Transformation to a Services Organization

Technology

Architecture

- Virtualization
- Borderless Network
- Collaboration

Process

Process and Operations

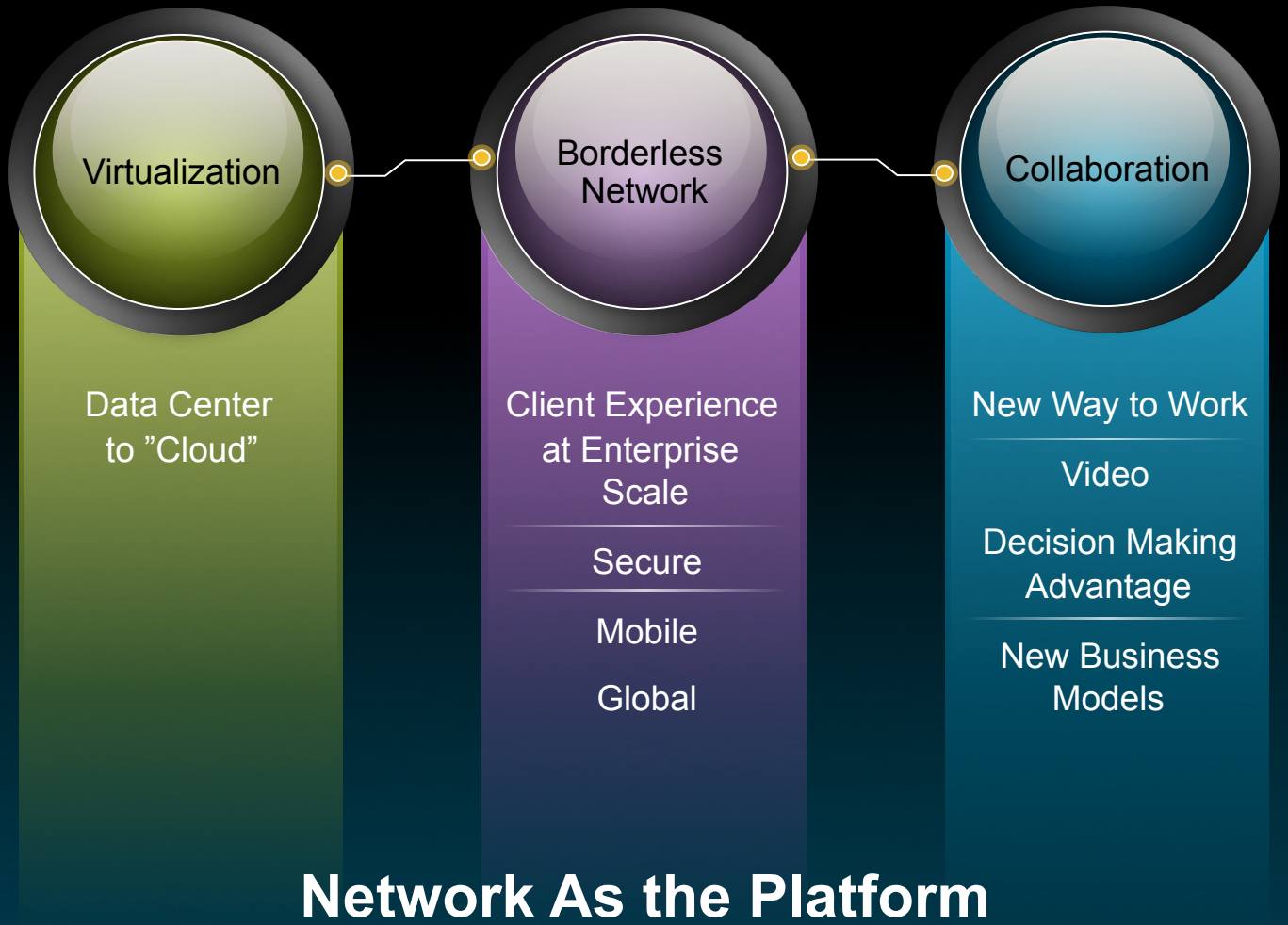
- Investment Planning
- Core IT Processes

Culture

Organizational Change

- Measuring Success
- Change Management

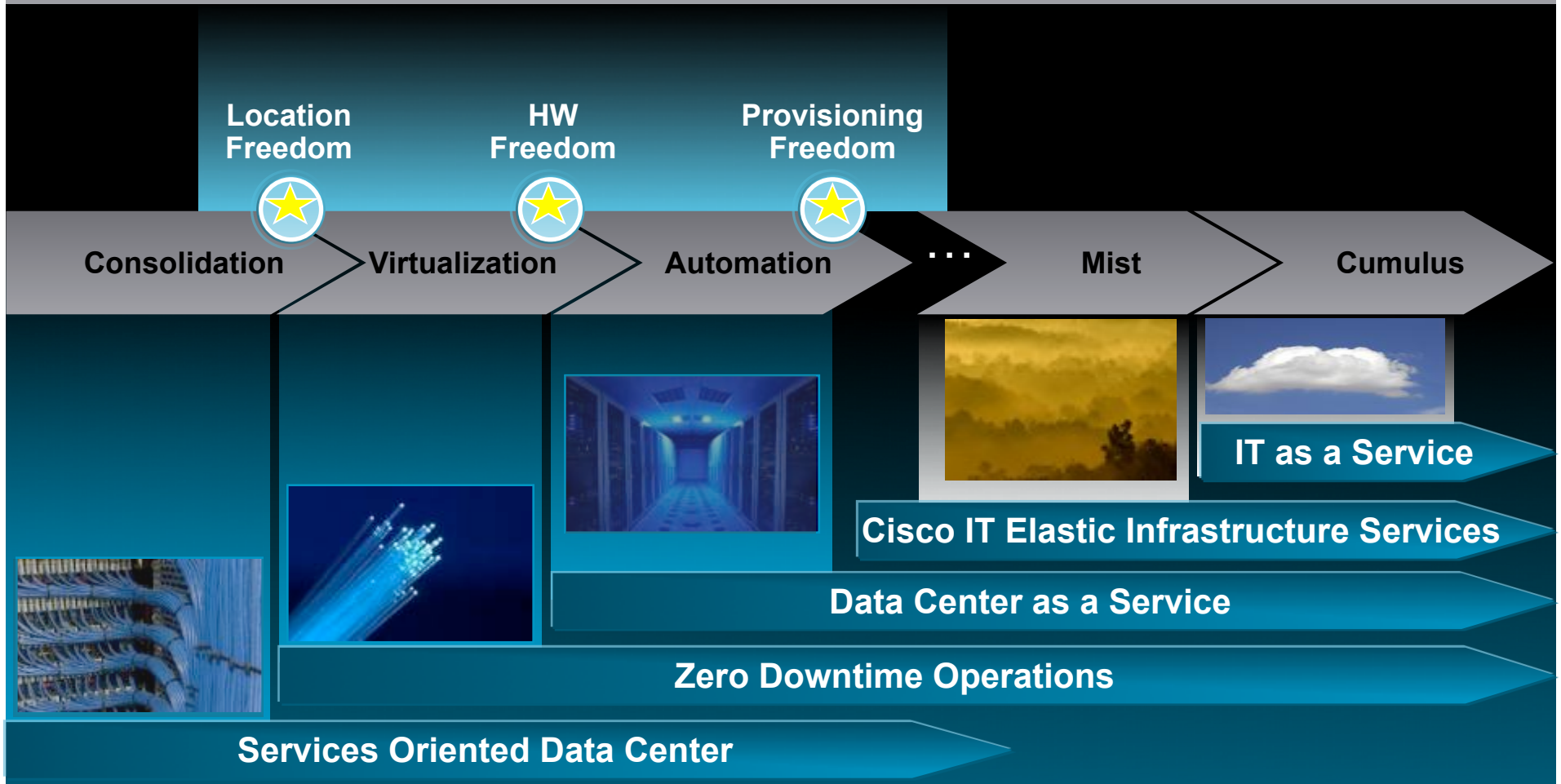
Architecture: Everything as a Service



Network As the Platform

Cisco IT – Why Cloud Computing?

Virtualization Has Created a Market Transition . Servers Are Becoming Fluid Objects in the Network. Cisco IT is developing an Elastic Architecture Alternative to Traditional Add-On Approaches for Data Centers.



Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (eg, networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

(6-1-09 NIST; Peter Mell and Tim Grance)

Characteristics

- On-demand self-service
- Ubiquitous network access
- Location independent resource pooling
- Rapid expansion
- Measured Service

Delivery Models

- Software as a Service – SaaS
- Platform as a Service – PaaS
- Infrastructure as a Service - IaaS

Deployment Models

- **Internal**/Private Cloud
- Public Cloud
- **Hybrid Cloud**

CITEIS: Cisco IT Elastic Infrastructure Services

What can Virtualization do for you?

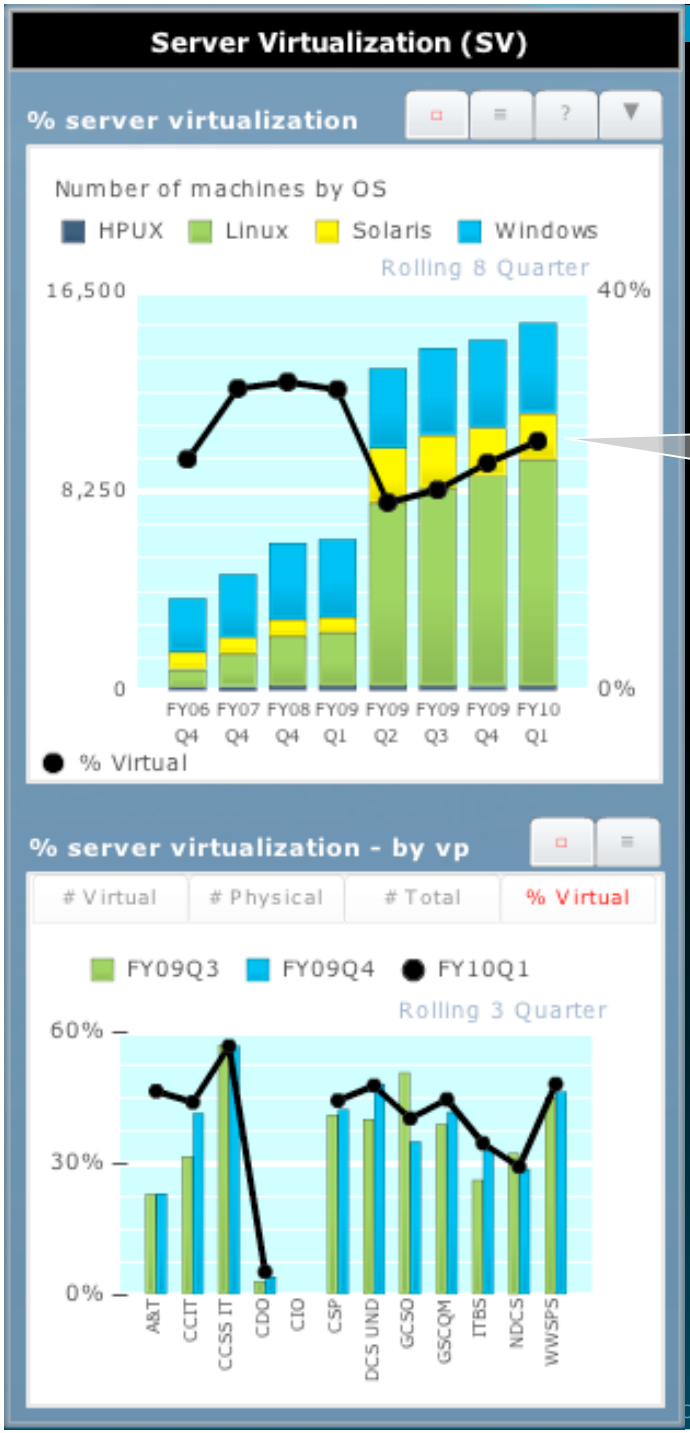
	Traditional	Unified Fabric	UCS
1. DC efficiency	100%	130–150%	130% 170–200%
10,000 sq ft, 1 MW			
2. Cabling	$2.7 Million	$1.6 Million	$1.6 Million
3. Physical server count	720	930 –1080	1200–1400
4. VM count	7200	9300–10800	12000–28000

Power Optimization

~40% Savings From Cabling

12,000 to 28,000 VMs In the Same Size DC!

1. Combination of cost and power optimization
2. Based on quotes received for cabling DC
3. Based on projections from testing in Cisco IT Lab
4. Assumes pre-UCS average V2P ratio of 10 to 1 and post UCS average ratio of up to 20 to 1 due to the memory expansion technology

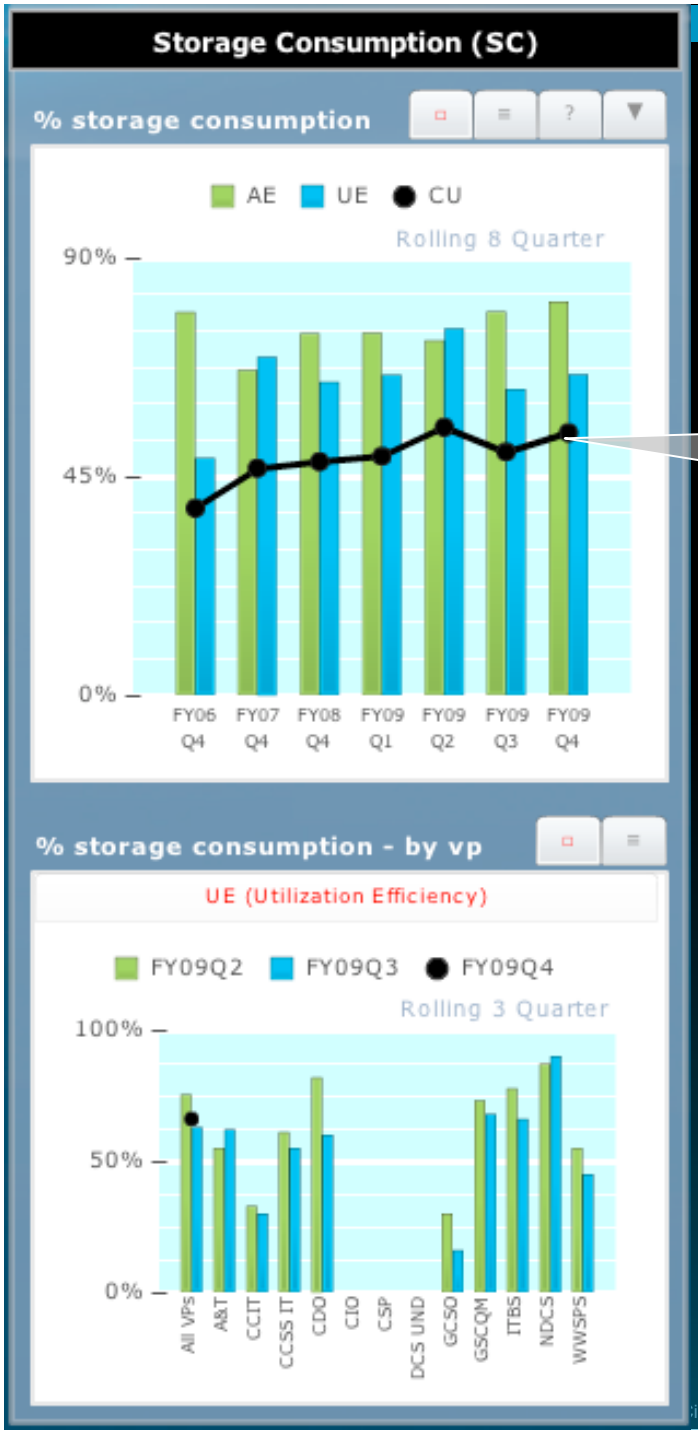


Our Server Virtualization results!

30 million in cost avoidance to date!

Invest to Save

- Cost Avoidance
- Invest with Savings
- Have a long term plan
- From under utilization to over-subscription



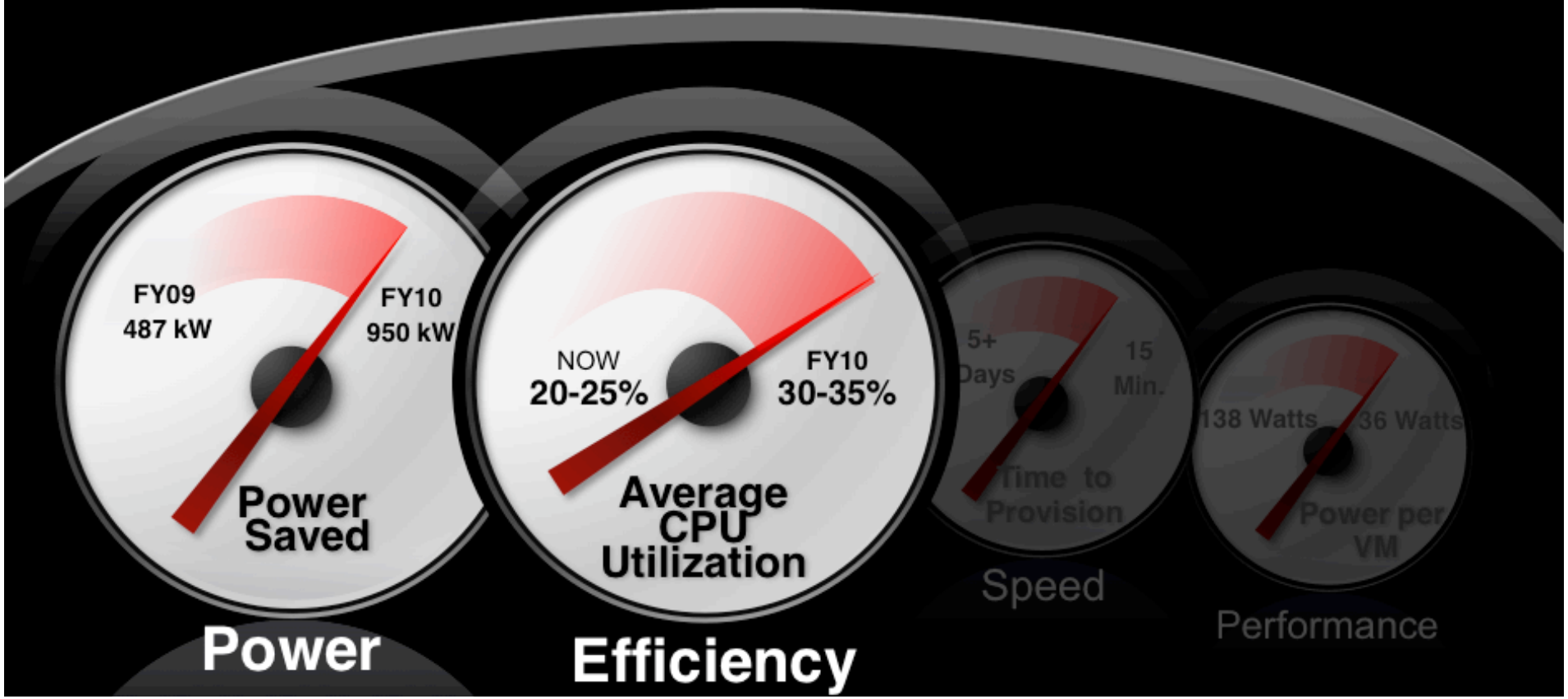
Our Storage Virtualization Results!

26 million in cost avoidance to date!

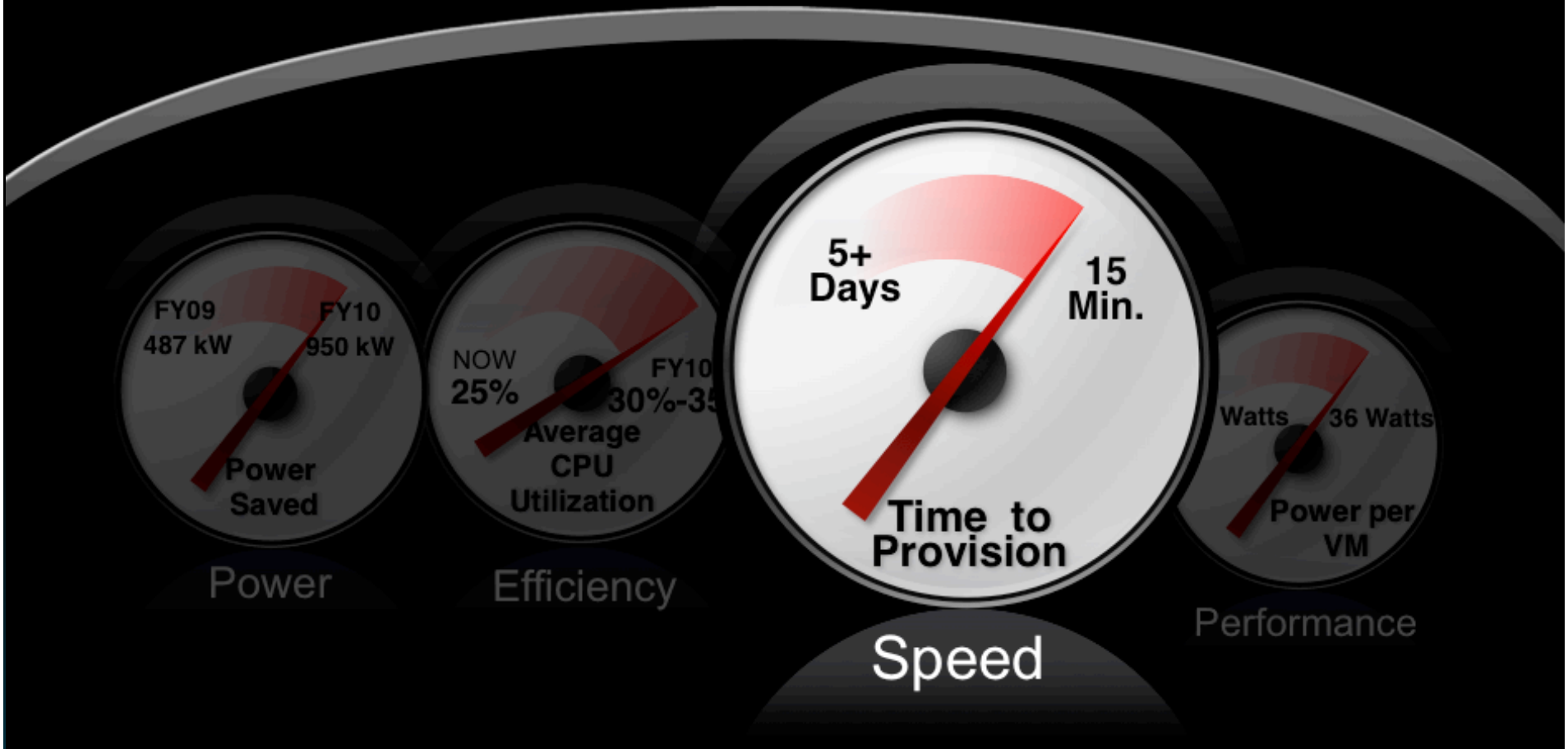
Invest to Save

- Cost Avoidance
- Invest with Savings
- Long term plan to drive %
- Under utilized to over-subscribed

Cisco Goals for this year…

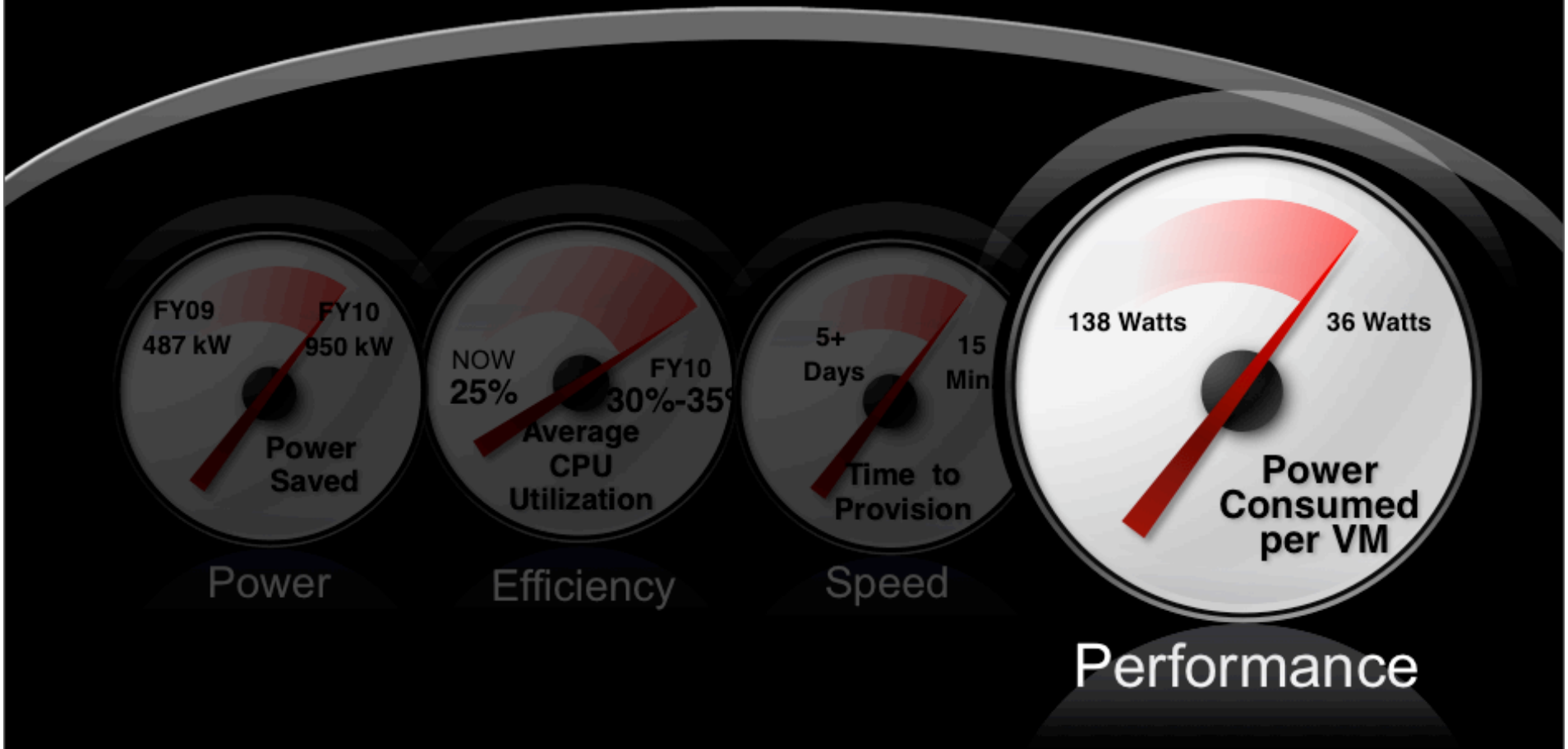


Cloud brings business agility…



Alert: CITEIS drastically improves productivity and time-to-provision from 5+ days to 15 minutes.

Cloud brings power savings…



Alert: Unified Computing System will decrease our power usage from 138 Watts per VM to 36 Watts per VM.

Key FY10 Plans

Operations

- Implement Virtualization Centers of Excellence globally (1HFY10)
- **Migrate 40% of our applications to Richardson (FY10)**
- Further organize around UCS and virtualization as a result of productivity benefits (2HFY10)
- **Increase server virtualization percentage from 30% to 60% (FY11)**

CDO

- **Implement UCS & CITEIS as compute foundation for code development – (2HFY10)**
- Alpha test all new SAVBU products (ongoing)
- Support V-C-E and Cloud initiatives with Cisco IT architecture & experience (1HFY10)
- Develop architecture & requirements for DC management from an enterprise IT perspective (1HFY10)

Innovation

- **Implement internal cloud services in production on UCS (1HFY10)**
- **Demonstrate moving workload between internal and external clouds (2HFY10)**
- **UCS as sole x86 deployment platform for new applications (1HFY10)**
- **Refresh all legacy x86 servers as appropriate to UCS (2-3 years)**

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